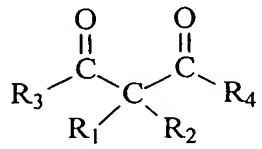
CLAIMS

1. A photoinitiator consisting essentially of a compound having a molecular weight of 1000 or less, and having a chemical structure represented by formula (1),



(1)

wherein R_3 and R_4 independently denote an alkyl group having a carbon number of 1 to 8, and

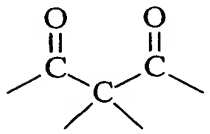
R_1 and R_2 independently denote

1) an electron attracting group,

2) an alkyl group having a carbon number of 1 to 8, or

3) an alkyl group having a carbon number of 1 to 8, which has an electron attracting group at the β, γ, or δ position with respect to both of the carbonyl groups, wherein the alkyl group 2) is methyl or ethyl group when each of the two substituents is the alkyl group 2), and

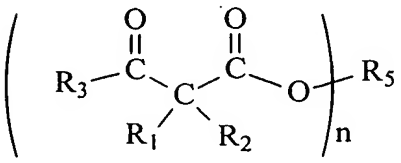
weight percentage of a chemical structure element represented by the following formula (2),



(2)

which is expressed in formula (1), based on the total molecular weight of the compound, is within the range of 17% to 54% by mass.

2. A photoinitiator consisting essentially of a compound having a molecular weight of 1000 or less, and having a chemical structure represented by the following formula (3),



(3)

wherein

R_3 denotes an alkyl group having a carbon number of 1 to 8,

R_5 denotes a mono-, di-, tri-, tetra- or pentavalent aliphatic hydrocarbon group, or an alkyleneoxy group containing aliphatic hydrocarbon group,

n is a natural number of 1 to 5, and

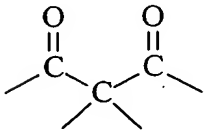
R_1 and R_2 independently denote

1) an electron attracting group,

2) an alkyl group having a carbon number of 1 to 8, or

3) an alkyl group having a carbon number of 1 to 8, which has an electron attracting group at the β, γ, or δ position with respect to both of the carbonyl groups, wherein the alkyl group 2) is methyl or ethyl group when each of the two substituents is the alkyl group 2), and

weight percentage of a chemical structure element represented by the following formula (2),



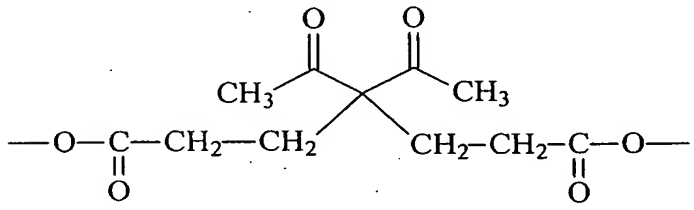
(2)

which is expressed in formula (3), based on the total

molecular weight of the compound, is within the range of 17% to 47% by mass.

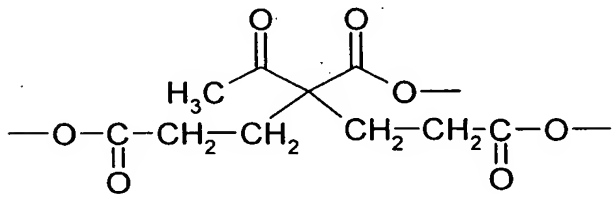
3. A photoinitiator according to claim 1 or 2, wherein the R_1 and R_2 are identical.

4. A photoinitiator according to claim 1, wherein the compound has at least one chemical structure element represented by the following formula (5).



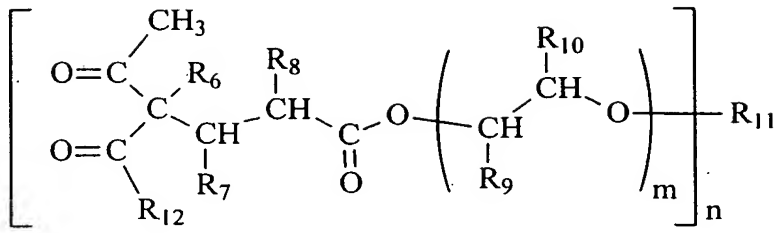
(5)

5. A photoinitiator according to claim 2, wherein the compound has at least one chemical structure element represented by the following formula (6).



(6)

6. A novel compound having a chemical structure represented by the following formula (7),



(7)

wherein

R_6 denotes an alkyl group having a carbon number of 1 to 8, a C_{1-4} alkyl carbonyl group, a cyano group, a C_{1-4} alkyl carbonyl methyl group, a C_{1-4} alkyl carbonyl ethyl group, a C_{1-4} alkoxy carbonyl methyl group, a C_{1-4} alkoxy carbonyl ethyl group, and an alkyl group having a carbon number of 1 to 8 which is substituted by carboxyl group or cyano group,

R_7, R_8, R_9, and R_{10} independently denote a hydrogen atom, or a methyl group, and at least one of R_9 and R_{10} is a hydrogen atom,

R_{11} denotes a di-, tri- or tetra-valent aliphatic hydrocarbon group having a carbon number of 2 to 12,

R_{12} denotes a methyl group, or an alkoxy group having a carbon number of 1 to 18,

n is a natural number of 2 to 4, and

m is an integer of 0 to 15.

7. A photocurable composition comprising,

(i) a photoinitiator according to the claim 1 to 7, and

(ii) a radical curable ethylenic unsaturated compound.